SOFTWOOD PLYWOOD FOR INTERIORS

natural beauty
structural performance
durability

American Plywood Association
September 1973

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PLYWOOD ADVANTAGES AND USES

Textured softwood plywood has moved indoors. Its soft texture gives welcome relief from the sheen of plastics and metal, the impersonality of plaster-like surfaces. Its remarkable variety of surfaces and grain patterns—even its knots and color variations—make it an outstanding wall and ceiling treatment, and a design focus, for contemporary surroundings.

Traditionally an exterior siding, softwood plywood brings to interiors the beauty and richness of real wood, which cannot be duplicated by substitute materials. It brings with it the inherent high quality signified by the grade-trademarks of the American Plywood Association. APA® members produce more than 80 percent of all softwood plywood in the United States, backed by the Association's quality inspection and testing service and supported by on-going product application and improvement research.

The marked advantages of softwood plywood for siding are equally impressive in interior applications.

Its adaptability, its durability and structural integrity, its ease of handling . . . these qualities make softwood plywood today's preferred indoor design material.

Available in dozens of patterns, styles, and textures of natural wood—or with special overlays and coatings—plywood paneling can withstand years of wear and tear—needs little or no upkeep, yet maintains its original beauty.

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Textured panels, highlighted by stain, transform an ordinary room or office into one of distinction. Or smooth, painted panels can become an elegant and formal backdrop.

APA plywood has built-in durability and strength. Its cross-laminated construction takes advantage of wood's great along-the-grain strength to produce a stiff, strong, puncture-resistant product. Best known as a rigid structural material, plywood's flexibility lets it curve to change design concept into reality. And because it won't split, chip, crack, or crumble, softwood plywood paneling doesn't show furniture- or toy-caused bumps and scrapes.

Plywood is easy to use, covers fast, requires no special tools, or skills. Painted, stained, or natural, plywood's precisely dimensioned panels, available in lengths to 10

feet, are a keynote of efficient, economical construction.

Another plus—plywood's natural thermal insulation makes heating costs lower. Because softwood plywood mutes noise, rooms paneled with it are quieter—sound "natural."

1. Home, Martha's Vineyard, MA; Peter Berman, Architect—Plywood with high-build textured coating. **2.** Home, Tacoma, WA—Relief grain brushed cedar. **3.** Home, Belvedere, CA; O'Brien and Armstrong, Architects—Rough sawn cedar. **4.** Home, Tacoma, WA; Relief grain brushed cedar. **5.** Pool room, Leroy Frederick Van Lent, Architect—Grooved plywood applied horizontally.

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RESIDENTIAL USES OF PLYWOOD

Whether you prefer rough surfaces, smooth surfaces, contrasting textures, bright colors, soft colors, additional strength and durability, or simply economical redecorating, there's a plywood panel to do the job.

Panels of APA softwood plywood are amenable to creation of the informal settings for today's lifestyle. In living and dining rooms, bedrooms, in kitchens or playrooms, their textures express the warmth and sophistication of leisure living. The rugged surfaces preserve the "old" flavor in modern versions of early American design. Or handsomely delineate a myriad of other architectural styles.

Overlaid panels give a dent- and puncture-resistant surface to rooms where a painted look is preferred. Accented with decorative moldings, these smooth paneled walls take on an elegance to back-drop the reserved formal look.

Ceilings are also taking on character. Once painted white and ignored, the ceiling dressed up with textured plywood is creating renewed interest in overhead design. For structural support or merely decoration, there are four basic plywood ceiling applications. In the first, plywood panels are applied over exposed ceiling beams on wide spacings, independent of the roof supports.

In the second, ledger strips are fastened to roof beams to support panels which are simply set in place. Third, panels are fastened to the bottom of ceiling joists or roof rafters on regular spacings. Last, thick plywood panels serve as combination decking and ceiling and are applied over structural roof or floor beams on wide spacings.

Plywood—not to be forgotten in remodeling—adapts for storage cabinets, closets, shelving, and dividers. Built-ins can be constructed of regular sanded paint-grades of plywood.

1. Home, Los Gatos, CA; Peter Behn, Architect; Courtesy *American Home Magazine*; Photographs by Stephen Green-Armytage—Rough sawn cedar. **2.** Modular home: Danielian, Moon, Sampieri & Ilg. Architects; photo courtesy *House Beautiful*—Texture 1-11 applied horizontally. **3.** Rough sawn Texture 1-11, grooved 4 inches on center, stained. **4.** Home, Tacoma, WA; Jere Johnson, Architect—MDO. **5.** Home, Dallas, TX; Charles Collum, Designer—Rough sawn cedar. **6.** Rough sawn fir with field-applied batten 6 inches o.c.

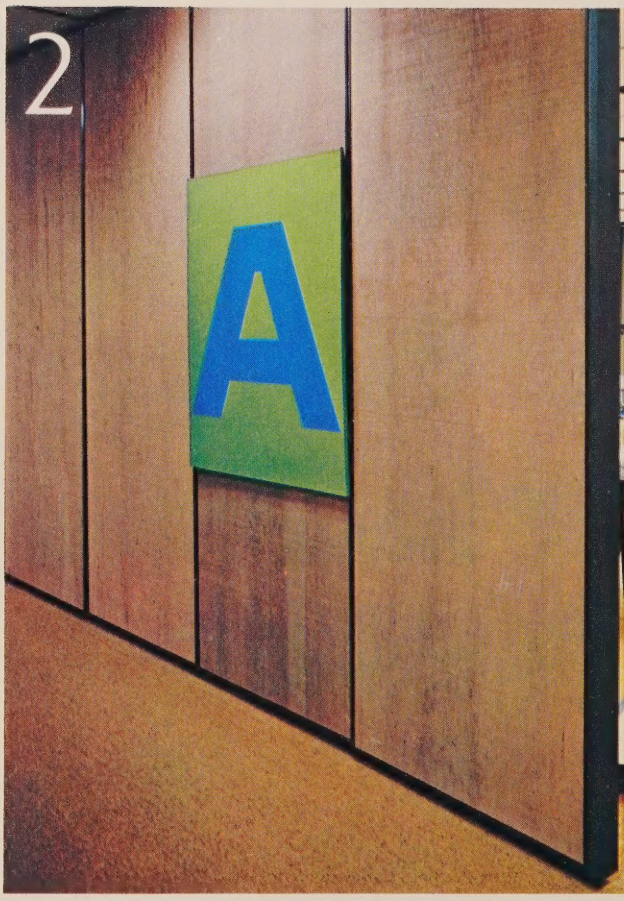
Walls that years of painting or papering have failed to revitalize can be given new life with plywood. A whole room may be paneled, complete with paneled doors and built-ins to match. A room can be brightened by paneling just one wall. Plywood sheathing finished with a textured APA qualified coating imparts a Mediterranean feeling to rooms with a Spanish theme. And easily installed aggregate-coated panels make for imaginative mosaic stone treatment of an entry hall.

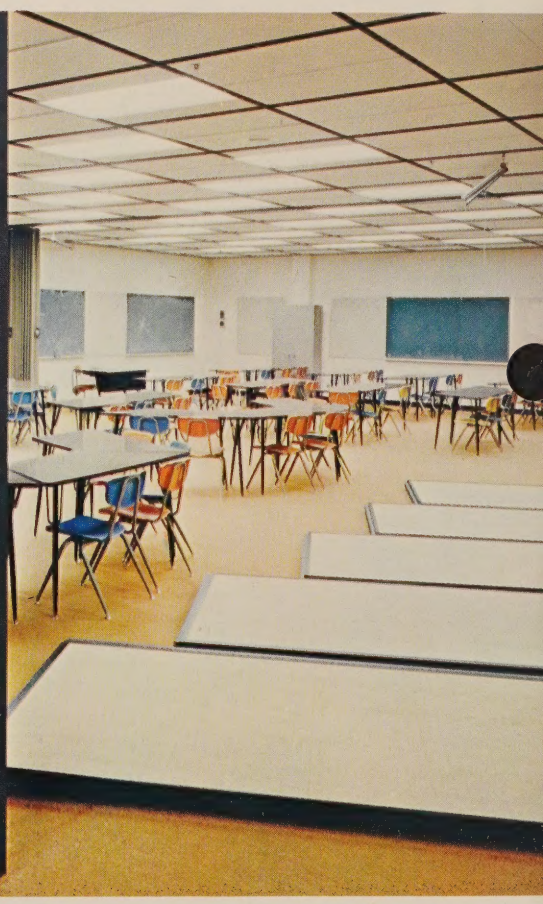
Design flexibility, structural stability, long life, low maintenance, economy, and warmth and beauty . . . these hallmarks of softwood plywood also extend to the business community. Meeting the hard-use demands placed on most commercial establishments is the job of APA grade-trademarked plywood in both building and remodeling.

Textured plywood panels cover restaurant and cocktail lounge walls. In department stores, softwood plywood divider sections set off displays of furniture, art pieces, garden items, sports equipment, or clothing.

Panels, curved and fastened to arched glulam beams, create vaulted, natural wood ceilings that please aesthetically as well as acoustically in modern churches and auditoriums.

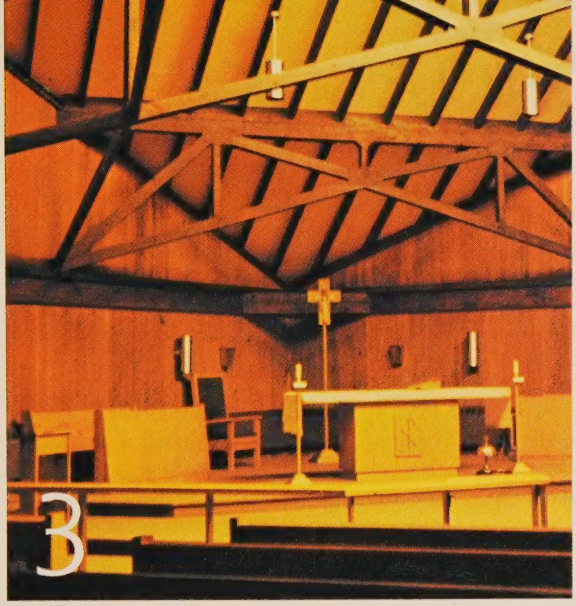
Planned in many instances to blend into the "uncity" surroundings of their suburban locations, many business facilities are finished with textured plywood sidings. These same finishes used inside carry the natural theme indoors and complement the exterior too.





COMMERCIAL USES OF PLYWOOD

For community centers, nature study centers, schools, libraries, resorts, and hospitals—wherever the requirement is for tough, low maintenance interiors that stay like-new—textured softwood plywood fills the bill.



1. Sea-Tac Motor Inn, Seattle, WA; Nelson, Walla & Dolle, Architects—Rough sawn fir. **2.** Trevor G. Browne High School, Phoenix, AZ; Phoenix Planners, Architects—Rough sawn fir. **3.** St. Simeons Episcopal Church, Wildwood, NC—Rough sawn cedar. **4.** Reception room; Kerfed rough sawn, grooved 8 inches o.c. **5.** Audio-King Store—Texture 1-11. **6.** Office, San Francisco, CA; Donald MacDonald, Architect—MDO.

UNIQUE DESIGN WITH PLYWOOD

Creative use of APA softwood plywood enhances interior design. A panel may simply be framed with molding- the natural variation of wood grain acts as a painting or as a background for an art object.

A wall may be framed with furring strips, painted a dark color, and finished by attaching plywood panels to the inset strips. The panels, projecting from the dark wall, are accentuated and seem to float in space.

Wood moldings may be used to make harmonious geometric patterns on a paneled wall.

Plywood cutouts of any design, applied to a wall, can emphasize a furniture style or decorating theme. A plywood panel suspended becomes an effective backdrop for light fixtures. Plywood, either textured or smooth MDO, even has a place in mural walls and striking home or office sculpture.

1. Cable Car Bed, Tacoma, WA; Richard E. Wagner, Designer—MDO. **2.** Home, Florida Keys, FL; Dan C. Duckham, Architect—Texture 1-11 grooved 2 inches on center. **3.** Family room, courtesy Meredith Corporation, ©1973—Rough sawn fir. **4.** Office, San Francisco, CA; Mario Ciampi, Architect—Rough sawn fir, sanded fir. **5.** J. Magnin, San Francisco, CA; Chatham Schulster, Architect—MDO. **6.** Trevor G. Browne High School, Phoenix, AZ; Phoenix Planners, Architects—Rough sawn fir. **7.** Mural, San Francisco, CA; Peters & Clayberg & Associates, Architects—Rough sawn cedar with channel grooves.

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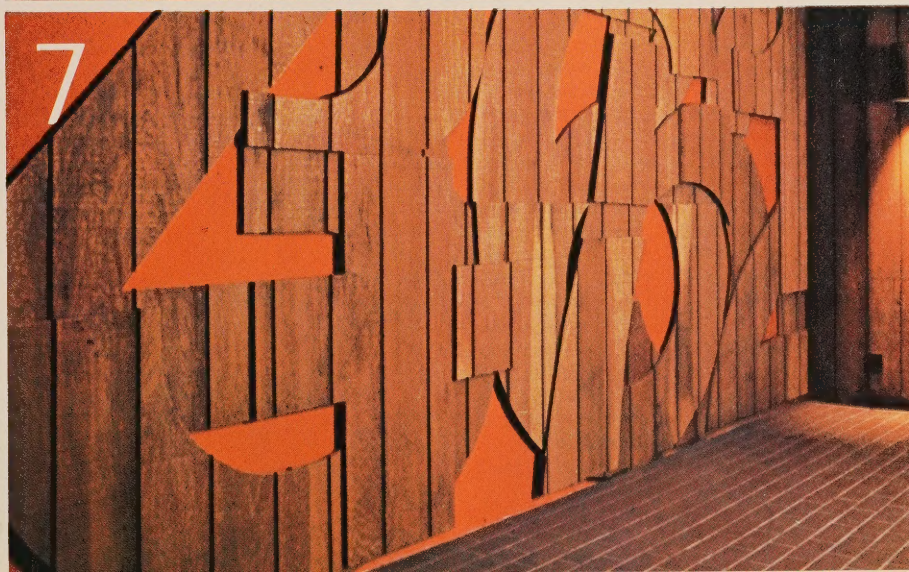
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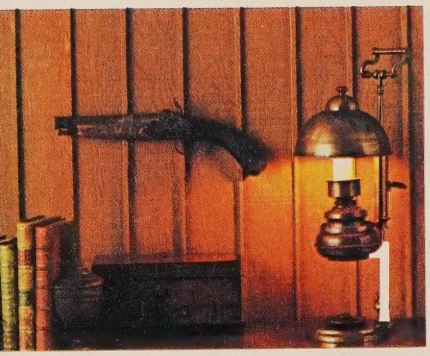
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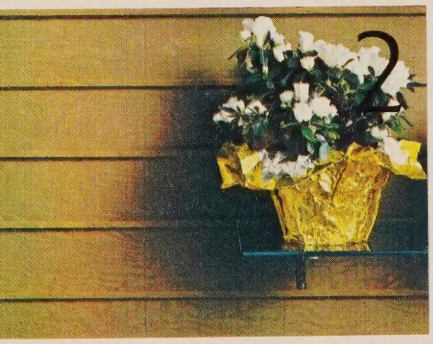
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A SAMPLING OF TEXTURED PLYWOOD

Examples of the variety of textured, patterned, and coated plywood panels are shown here along with information about each one . . . Many of the rustic-type panels incorporate natural wood characteristics (small knots, resin-filled knotholes, and the like), which contribute to their true natural flavor.

Textured 303® Sidings come in several plywood surfaces and several species, including Douglas fir, redwood, cedar, southern pine, lauan, and other Asian woods.

Plywood is also a preferred substrate for vinyl sheet coverings and simulated brick or stone veneers that are applied with adhesives at the factory or jobsite.

1. *Rough sawn* has a slight, saw-roughened texture running across the panel. It is available with or without channel or V-grooves in lapped siding widths to 12 inches or panel form. "Premium" or "clear" panels, with a minimum of open defects, are produced by many manufacturers. Tongue-and-groove panels (3/4 and 1-1/8 inch thick) can serve as combination decking and ceiling over exposed roof or floor beams. Shown with field-applied battens 6 inches on center. Panel nominal thicknesses: 3/8 to 1-1/8 inch.

2. *APA Texture 1-11®* is a 5/8 inch thick plywood panel with shiplapped edges and parallel grooves 1/4 inch deep, 3/8 inch wide, spaced 2, 4, 6, or 8 inches on center. T 1-11 may be sanded, unsanded, overlaid, rough sawn, or brushed. Shown applied horizontally.

3. *APA Texture 1-11,* applied vertically, has parallel grooving 4 inches on center.

4. *Medium Density Overlaid (MDO)* plywood with its resin impregnated overlay provides a surface that is excellent for painting. Available without grooving, with V-grooves, in reverse board and batten, or Texture 1-11, MDO also comes factory primed. A texture-embossed MDO panel is also available for durable painted surfaces having a combination brushed and rough sawn texture. Panel thicknesses are 5/16, 3/8, 1/2 and 5/8 inch.

5. *Kerfed rough sawn 303* has a rough sawn surface with narrow grooves 2 or 4 inches on center (or in multiples of 2 inches). Long edges are shiplapped for a continuous pattern—shown here with grooving 6 inches on center. Thicknesses: 3/8 to 3/4 inch.

6. *Channel groove 303* has shallow grooves, typically 1/16 inch deep, 3/8 inch wide, cut into faces of 3/8 inch thick panels, 2 or 4 inches on center although other groove spacings are available. Surface patterns and textures are similar to those offered in the Texture 1-11 selection. Thicknesses: 3/8 to 3/4 inch.

7. *Brushed 303* or relief-grain surfaces accent the natural grain pattern. Species include redwood, Douglas fir, cedar, Sitka spruce, and others. Thicknesses: 3/8 to 3/4 inch.

8. *Reverse board and batten 303* has deep, wide grooves cut into brushed, rough sawn, coarse sanded or natural unsanded surfaces. The grooves, which are 1/4 inch deep, 1 to 1-1/2 inches wide, spaced 8, 12, or 16 inches on center provide deep, sharp shadow lines. Panel may be finished with pigmented stain or left natural. Thicknesses: 5/8 or 3/4 inch.

9. *Fine-line 303* has shallow, narrow grooves cut into the plywood surface to provide a distinctive striped effect. It is available factory-primed or may be finished with pigmented stain or acrylic latex emulsion finishes. Thicknesses: 3/8 to 3/4 inch.

10, 11. *APA Qualified Coatings* include panels coated with various sizes of crushed stone or pebbles, high-build textured coatings, (as shown) prefinished metal overlays, and smooth surface coverings.

12, 13. *Kerfed rough sawn,* grooves 8 inches o.c., is finished with heavy-bodied stains.

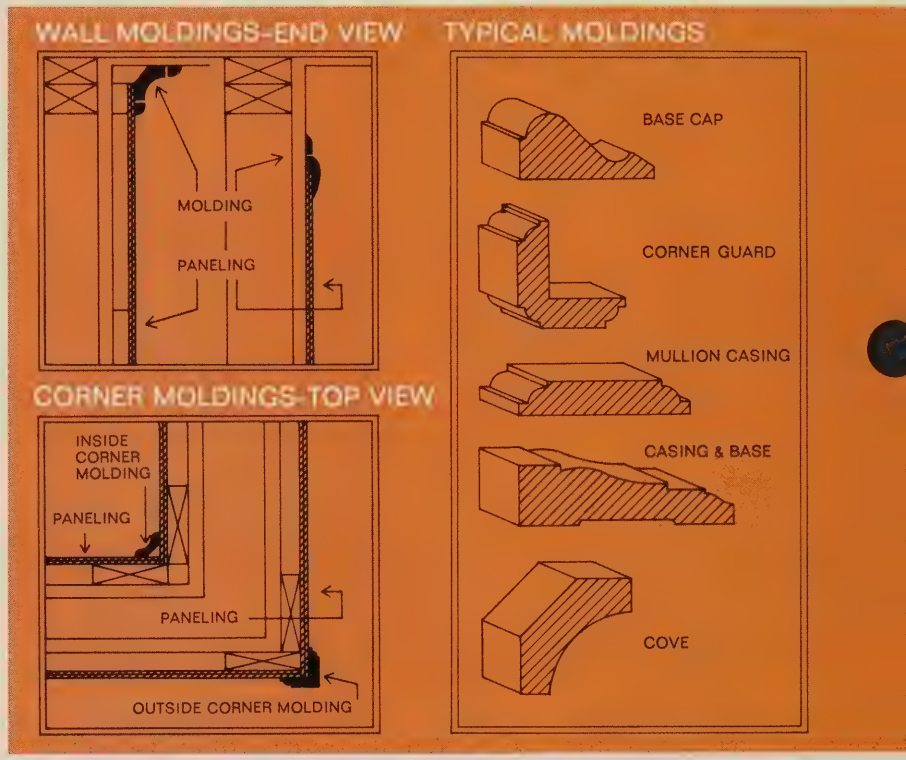
APPLICATION REMINDERS

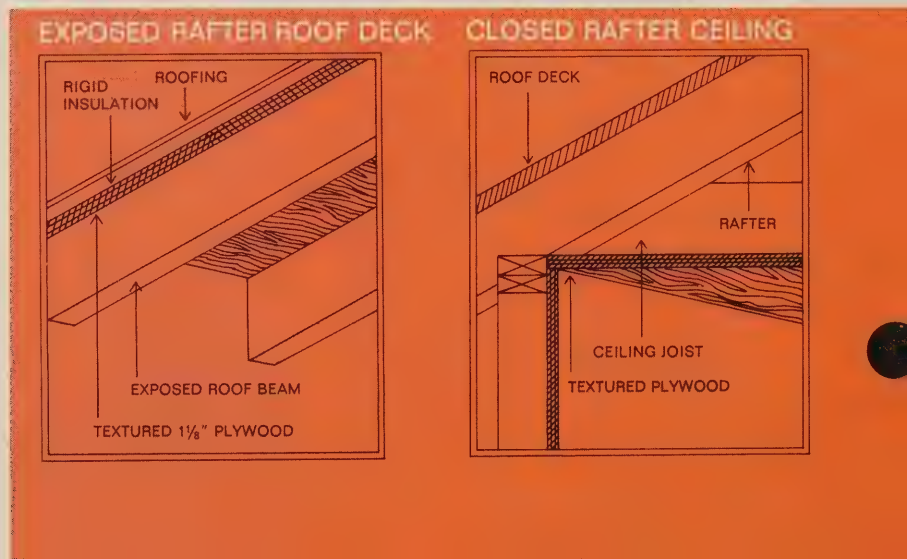
Paneling: APA softwood plywood paneling can be applied vertically or horizontally to new walls by nailing it directly to studs. Standard 8 foot panels run from floor to ceiling and attach to top and bottom plates. Crossblocking should be installed at any horizontal joint to provide a solid nailing base. With 1/4 inch plywood, horizontal blocking with 2 x 4's at midwall height is recommended unless plywood sheathing or wallboard is used for backing. In rooms with vaulted ceilings, use of 9 foot or 10 foot panels eliminates horizontal joints.

If old walls are true, new paneling can be glued to the existing surface after removing old molding. If walls have minor rough spots, a little sanding is a fast remedy. When walls are too imperfect, furring strips solve the problem. Nailed to studs, horizontal furring strips placed 16 inches apart and vertical strips 48 inches apart support panel edges. If the wall is quite uneven, shim shingles can be inserted behind the furring strips.

When paneling over masonry walls waterproof paint or some type of vapor barrier is applied before furring or paneling is begun. Horizontal furring strips are attached every 16 inches with masonry nails or panel adhesive, adding shims as needed to obtain a flush surface. A clearance of at least 1/4 inch above the top furring strip and below the bottom furring strip should be left. If the wall is so uneven that furring won't straighten it, it can be framed with 2 x 4's.

Moldings: Wood or plastic moldings finish paneling installations. They trim door and window openings to complement paneled walls; cover seams and joints at ceilings, floor, corners, and other areas; and





protect paneling from kicks and bumps. Factory-applied finishes eliminate on-the-job painting or staining. Available in many shapes, moldings are cut in various lengths to reduce installation waste. Dark-stained rough sawn lumber trim can be used in place of moldings to complement the rustic charm of textured plywood.

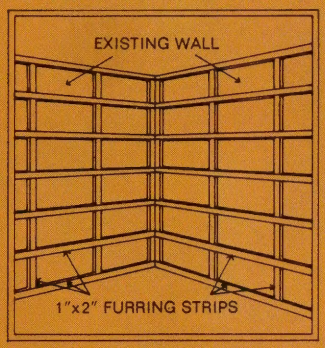
Ceiling treatments: Tongue-and-grooved textured plywood panels 1-1/8 inches or 3/4 inch thick depending upon beam spacing, nailed directly to exposed beams, give an all-wood flat, or vaulted ceiling, which can also serve as the structural roof deck or floor above it. It is well to fit panels together loosely (allow about 1/32 inch space) to account for possible minor variation with humidity changes.

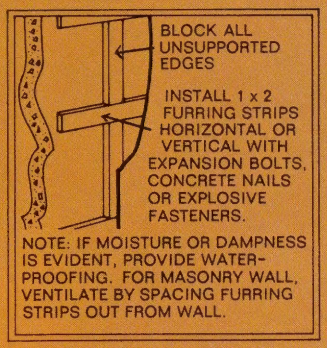
Joint treatments: Joints between ungrooved plywood panels left exposed create extra visual interest. V-jointing, by easing panel edges with a 45° bevel about 1/8 inch deep, is but one method. Another is with panel placement so that joints are aligned, or staggered. Butt joints can be covered, too. Simple battens or ornate moldings further enhance the decor.

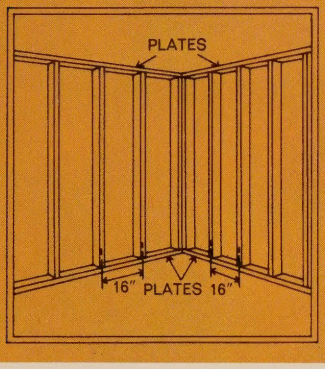
Where wall coverings, paint finishes, or job-applied coatings are used to obtain seamless monolithic walls, smooth joints are obtained with conventional dry wall taping or special joint treatments recommended by the manufacturer.

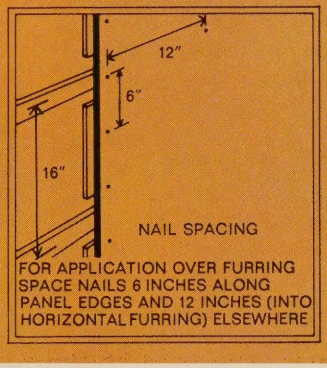
1. Home, Salt Lake City; Ron Molen, Architect—Texture 1-11 ceiling; plywood sheathing with cedar battens. **2.** Home, Tacoma, WA; Jere Johnson, Architect—MDO with molding. **3.** Office, San Francisco, CA; Mario Ciampi, Architect—Rough sawn and sanded fir.

PANELING APPLICATION




BLOCK ALL UNSUPPORTED EDGES
INSTALL 1 x 2 FURRING STRIPS HORIZONTAL OR VERTICAL WITH EXPANSION BOLTS, CONCRETE NAILS OR EXPLOSIVE FASTENERS.
NOTE: IF MOISTURE OR DAMPNESS IS EVIDENT, PROVIDE WATER-PROOFING. FOR MASONRY WALL, VENTILATE BY SPACING FURRING STRIPS OUT FROM WALL.




12"
6"
16"
NAIL SPACING
FOR APPLICATION OVER FURRING SPACE NAILS 6 INCHES ALONG PANEL EDGES AND 12 INCHES (INTO HORIZONTAL FURRING) ELSEWHERE

FASTENERS

PLYWOOD THICKNESS (INCH)	NAIL SIZE (CASING OR, FINISHING)
1/4"	6d
5/16"	6d
3/8"	6d
1/2"	6d
5/8"	8d
3/4"	8d
TEXTURE 1-11	8d

WHEN USING ANY OF THE GROOVED PANELINGS, ONE MAY NAIL THROUGH GROOVES TO THE STUD.

FINISHING DETAILS

For best results, only top-quality finishes should be used—and these in accordance with the manufacturer's instructions. In most cases, softwood plywood for interior application needs little preparation for finishing. MDO plywood needs none at all and is finished with conventional paints or enamels for an exceptionally smooth, durable surface.

Countersunk nail holes may be filled with putty if a paint or stain finish is to be used. A non-oily wood filler is recommended if a natural finish is planned, or if the wood is to be given a light stain treatment. Wood fillers are available in a variety of shades to match wood colors. Fillers also may be tinted with dry pigments to achieve special shades.

Sometimes "touch sanding" is needed to smooth any filler or spackle applied to minor abrasions or nail holes or to remove blemishes. Plywood should be clean and dry. All knots and pitch streaks should be touched up with sealer or shellac before painting.

INTERIOR NATURAL FINISHES

Plywood for natural finishes should be carefully selected for pattern and appearance. For most natural effects, two coats of clear resin sealer or lacquer are used to maintain a clean panel surface and avoid soiling.

For smooth plywood, repairs and grain irregularities can be pleasantly subdued with light stain finishes applied in either of two ways.

Color Toning requires companion stains and nonpenetrating sealers. These have the advantage of requiring only one step for application of stain and sealer. The sealer is a heavy-bodied nonpenetrating type with nonhiding pigments, which preserves natural wood appearance. A small amount of sealer is tinted with stain until the desired tone is obtained on a sample. Then, enough stain and sealer to do the entire job are mixed in the same proportion and applied by brush or spray. After drying and light sanding, a coat of clear finish is added to give the desired luster and durability. Tones of light gray, brown or tan go well with wood colors and provide best grain masking. American Plywood Association will provide names of manufacturers of companion products.

Light Stain is another natural finish technique that also mellows plywood's grain pattern. It entails more steps than color toning, but does not require special companion stains and sealers. The panel is first whitened with pigmented resin sealer or interior white undercoat cut "one to one" with thinner. Before it becomes tacky, the sealer is wiped off to permit show of grain.

Clear resin sealer is applied, allowed to dry, and sandpapered lightly.

The color is added with tinted undercoat, thin enamel, pigmented resin sealer, or light stain; applied thinly; and wiped to the proper color depth. After drying and light sanding, a coat of satin varnish or brushing lacquer is applied to provide luster and durability.

1. Rough sawn fir with channel groove; stain brushed on. **2.** MDO; paint finishing. **3.** Sea Tac Motor Inn, Seattle, WA; Nelson, Walla & Dolle, Architects—Rough sawn fir. **4.** Slumber beds, Arvid Orbeck, Designer—MDO. **5.** Reverse board and batten; battens painted. **6.** Sanded fir with molding.

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STAIN FINISHES

For rough or textured plywood, stains are the preferred finish. They should be applied in one or two coats according to manufacturer's directions, and give best performance when applied by brush. Brushing helps work the finish into the wood surface. Stain may also be applied by roller, using a long-napped covering for textured panels. Stains may be either oil (solvent thinned) or latex emulsion (water thinned) types. Both types provide excellent performance and are available either semitransparent or opaque. Emulsion stains dry quickly and care is needed to avoid lap marks from double coating previously stained areas.

Depending upon the appearance desired, two broad types of stains are available.

Semitransparent or penetrating stains provide maximum grain and color show-through and display of surface texture. The stain penetrates the surface to provide protection, but leaves little surface film. One or two coats may be used to obtain the depth of color desired. This is the favored finish where desirable grain characteristics are to be displayed.

Opaque or heavy-bodied stains are used where masking of all substrate characteristics except texture is desired. These highly pigmented stains usually require only one coat for adequate coverage. Opaque stains penetrate the surface to protect the wood but leave a thin coating of uniform color on the surface. Use where maximum masking is desired on textured plywood such as rough sawn and Texture 1-11.

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INTERIOR PAINTS

Oil or alkyd resin (solvent thinned) paints should be used where washability and durability are of prime concern. Fingerprints, dirt, crayon, and other stains can be scrubbed off repeatedly. These paints have good hiding properties and can be brushed, rolled, or sprayed. Some are self-priming on wood. These are generally used on smooth surfaces such as Medium Density Overlay.

Latex emulsion paints (water-thinned) have some degree of washability. They are easily applied with brush, roller, or spray; have good color retention; and dry rapidly. Plywood surfaces should be primed with an oil or alkyd compatible primer or a companion stain-resistant latex primer to prevent grain raise and minimize staining.

Gloss and semigloss enamels are extremely washable. Usually of the alkyd-resin type, they are also available in acrylic-latex or water-thinned types. Their use is primarily in kitchens and bathrooms for trim or cabinet work. They should be applied over the manufacturer's recommended primer.

SPECIAL EFFECTS

Stippled or textured finish may be used along with taping to completely hide joints in plywood paneling. Since the stipple texture paints are usually of latex type, the plywood must be primed with a compatible stain-resistant primer. The stipple is then applied as recommended.

Multicolor spatter finish is usually a lacquer, blending two or more colors of uniform fleck size. When applied by spray, the colors remain separate and distinct, creating an unusual decorative effect. The finish can be applied lightly over a colored background, or fully over a primer, and works well with V-joints in plywood panels.

Wall coverings such as fabric-backed vinyl films are available in unlimited patterns and textures. Joints between panels and openings in the panel surface should be filled with a joint compound and the entire surface sized with a product such as shellac. A latex adhesive is applied to the back of the wall covering and the covering pressed firmly to the plywood wall.

Some plywood siding products are supplied mill-treated with water-repellent preservative for best performance outdoors. For interior applications where such treatment is neither required nor recommended, textured plywood is available without treatment.

The American Plywood Association is a nonprofit organization representing the softwood plywood industry. It is charged by its members with three primary functions: research, quality testing/inspection, and promotion.

As a requirement for the use of the Association-owned grade-trademarks on their production, members must participate in a continuing product quality testing and inspection program. They also support product and applied research programs that form the technical basis for Association recommendations on product applications.

The APA headquarters and main laboratory complex are in Tacoma, Washington. Laboratory programs evaluate new products, new uses for present products, better utilization techniques, development of plywood design properties, better adhesives and coatings, and improved marking systems. Information developed is available from the Association. Data on durability and strength properties apply only to plywood bearing the APA grade-trademark.

The Association has eight quality-testing laboratories in producing regions across the country to ensure rapid and thorough testing procedures.

Only qualified member mills are licensed to use the APA grade-trademarks. To remain qualified, a mill's production must continuously satisfy the manufacturing standards of U.S. Product Standard PS 1 and the performance requirements of APA.

ABOUT APA

Always look for the Association's grade-trademark on the back of every softwood plywood panel. It is your assurance that the plywood is consistently of highest quality.

ABOUT PLYWOOD

Plywood is manufactured in two types—Exterior type with a 100-percent waterproof glueline and Interior type with a highly water-resistant glueline. Veneers in the backs and inner plies of Exterior type are of higher grade than those in Interior type.

Siding panels used in interior application are Exterior type, because of their dual usage. Typical of the grade-trademarks that appear on the panels are these for Texture 1-11, 303 Siding, and MDO.

Plywood is manufactured from some 50 different species which have been classified into five Groups in Product Standard PS 1. The Group number that appears in many APA grade-trademarks refers to the species used for the panel face and back. Where face and back veneers are not from the same species Group, the number is based on the Group of lesser strength. Of the five Groups, Group 1 is the strongest.

SUGGESTED SPECIFICATION

All plywood siding shall be of Exterior type and of one of the following styles: ( ). Each panel shall be identified with the grade-trademark of the American Plywood Association and shall meet the requirements of Product Standard PS 1 for Softwood Plywood—Construction & Industrial. Panel thickness and application details shall be as shown on the drawings.

AVAILABLE LITERATURE

For additional information on textured plywood and plywood design and construction, write for free copies of APA literature:

Plywood Siding (X40)
Plywood Construction Systems for Commercial and Industrial Buildings (P310)
Residential Construction Guide (Q450)
Textures & Design (V410)
Architectural Plywood Walls (W340)
Joint Details for Exterior Plywood Wall Systems (X330)
The Plywood "How To" Book (V605)
Exterior Design with Plywood (V430)
A Bookful of Ideas for Your New Home (T635)
A Sampling of Plywood for Paneling and Siding (V305)
Plywood Construction & Noise Control (W460)
Construction for Fire Protection (W305)
Mod 24 Building Guide (W405)

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ATLANTA/Paul D. Colbenson, P.O. Box 90550, East Point Branch, Atlanta, Georgia 30344, (404) 767- 5440. **CHICAGO**/Vernon D. Haskell, 120 East Ogden Avenue, Room 204, Hinsdale, Illinois 60521, (312) 323-5787. **DALLAS**/A. M. Leggett, Bldg. II, Suite 160, 10300 North Central Expressway, Dallas, Texas 75231, (214) 691-7391. **LOS ANGELES**/Long Beach, California (213) 439-8616. **NEW YORK**/Englewood Cliffs, New Jersey, (201) 567-7238. **SAN FRANCISCO**/Philip L. Benfield, P.O. Box 3536, Fremont, California 94538, (415) 657-5959. **WASHINGTON, D.C.**/Paul G. Nystrom, 200 North Glebe Road, Arlington, Virginia 22203, (703) 524-8082.

AMERICAN PLYWOOD ASSOCIATION
1119 A Street / Tacoma, Washington 98401

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